

p. 93, with a legend to the effect that it is the parent form. Apparently Prof. Davenport is unaware that the passenger pigeon belongs to a genus apart from the one including the blue rock and domesticated breeds.

The author's want of knowledge is, perhaps, still more conspicuous in the section on cattle and sheep (pp. 219-30), where blunders occur in profusion. In the legend to the figure of an Indian buffalo, on p. 218, we are told, for instance, that this is the only kind of buffalo, but that the name is often applied to the European (as well as to the American) bison. The gayer is stated on p. 221 to be "an intermediate between the domesticated and the wild cattle of the Indian type"; but even that statement is outdone on p. 223, where we are told that if the domesticated cattle of Africa and Asia were to die out, there would be no difficulty in replacing them from wild stocks! Where the author proposes to find a wild ox in Africa, I do not know; but he apparently does not realise the difference between a buffalo and an ox. After this it is not surprising to find the revival of the theory that white park cattle (which are stated to occur "at Chillingham in southern Scotland, and Chartley and Cadzow in southern England") represent the ancestral colour of the wild ox. Neither is it startling to find it stated (p. 228) that the Armenian wild sheep inhabits the islands of the Mediterranean, that the Cyprian wild sheep has more than two horns (p. 230), and that "the musk-ox stands between the cattle and the sheep" (p. 229).

With these and other blunders in a couple of sections, Prof. Davenport's volume can scarcely be recommended as a trustworthy guide to youth in search of information.

R. L.

POPULAR SCIENCE.

The Autobiography of an Electron; wherein the Scientific Ideas of the Present Time are explained in an Interesting and Novel Fashion. By C. R. Gibson. Pp. 216. (London: Seeley and Co., Ltd., 1911.) Price 3s. 6d. net.

A BOOK with so strange a title may well excite our curiosity, for it is not unnatural to expect in such an autobiography interesting speculations as to the nature and functions of electrons going beyond the limits of certain knowledge, and putting forward ideas suggestive of possible future advances in scientific thought. But though the electron is made to give an account of its experiences in different natural phenomena and experiments, it discreetly declines to tell us anything beyond what we know to be facts or what we are accustomed to regard as accepted physical theories. What, then, is the object of this story of the electron—or, more correctly, this series of stories about the experience of the electron in the different experiments described in each chapter? To use the author's own phrase, it is to present to his readers "a book which they may read with the same ease as an interesting novel."

Now it must be admitted that this desire to present to the scientifically untrained reader the established facts and theories of modern science, in a simple and

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pleasant form, is much to be commended; for the lack of interest taken by the general public in such matters is certainly deplorable. The author is right in thinking that there are many who would take an intelligent interest in scientific progress, but do not care to go into details, and no doubt men of science are largely at fault for not providing such readers with suitable literature. But it is difficult to see what is gained by the somewhat childish device of making the electron speak for itself, and describing the phenomena in the first person rather than in the more usual third person; besides, the contents of each chapter is preceded by a short synopsis called the "scribe's note," and the subsequent text takes one very little further than this note.

Although the particular form of the book seems to have no special advantage, the facts dealt with and their explanations are set forth quite clearly, and with accuracy, so far as is possible, in an elementary way; but there are disadvantages in the method of presentation which are worthy of mention. Whereas when dealing with certain fundamental conceptions of electricity it may be useful to introduce the idea of electrons, to do so seems to add nothing to the understanding of our methods of employing electricity for telegraphy, lighting, traction, and so forth. The principles involved in such technical application can be described without any reference to the ultimate nature of electric currents, without any sacrifice of precision; in fact, the consideration of the motion of the electrons only serves to detract attention from the more essential points. Again, the method of making the electron tell its own story leads the author into rather dogmatic statements on doubtful points. Thus it is found necessary to take up a definite attitude with regard to the nature of X-rays, which are described as æther-pulses, whereas of late considerable doubt has been thrown upon the validity of this conception of the radiation. Taken as a whole, however, this little book is quite a good and interesting popular account of some of the more important ideas of modern physics.

OUR BOOK SHELF.

Cat's Cradles from many Lands. By Kathleen Haddon. Pp. xvi+95. (London: Longmans, Green and Co., 1911.) Price 2s. 6d. net.

THE problem of the origin and diffusion of games is now generally recognised to be of some ethnographical importance, and Miss Haddon, in her careful account of the mysteries of cat's cradle, has done something to increase our knowledge. Like all pioneers in a new field of inquiry, she has to lament the scantiness of her material. Here and there persons interested in the subject have picked up various forms of the game among American Indians and Eskimo, the people of Central and South Africa, in the Caroline and Andaman Islands, in Oceania and Australia. But large regions, like India, from which only a couple of examples come, still remain practically unworked; and until the search for the game is more widely extended there will be no certain means of deciding whether it originated in one or many centres, and by what routes and agency it was diffused.

It is not surprising, as Miss Haddon remarks, that some of the plainer forms should have a wider dis-

tribution, because, given a simple loop of string, they would soon present themselves to the mind of the ingenious savage. But it is much more difficult to account for the presence of one of the most complicated forms in the Andaman Islands, Torres Straits, Australia, and Central Africa. In some cases doubtless this is the result of direct transmission, as when the puzzled folk-lorist finds "Cinderella" in the Cannibal Islands, he may reasonably suspect that she came with the Berlin-wool work and the hideous forms of dress popular in mission schools. But until more materials become available it is useless to speculate in this way.

This is some evidence, again, that certain forms of the game may be derived from magic of the sympathetic or mimetic kind; and inquirers interested in the subject would do well to ascertain if it is ever accompanied by magic formulæ or songs.

Meanwhile, Miss Haddon has given us a useful little book which may lead to the popularisation of the game in the kindergarten as a means of training eye and finger, or as a pleasant mode of wasting time for those who are no longer children.

A Course of Practical Physics. By Prof. E. P. Harrison. Pp. x+194. (London: Longmans, Green and Co., 1910.) Price 4s. 6d. net.

This book is based on the syllabus of practical physics for the B.Sc. degree of the University of Calcutta, and contains upwards of seventy experiments of an advanced nature. The author states in his preface that laboratory manuscripts have been used in its compilation, and this is far too evident in the result produced. Such instruction forms very often suffer from vagueness and looseness of expression, and although this may not be of much importance in the laboratory, where further explanations can be given by a demonstrator, yet in a published text-book care should be taken to eliminate such blemishes and make the descriptions more general and concise. To cite an example:—The determination of the thermal conductivity of copper on p. 130; the method is that of Searle; one is told to set up the apparatus as in the figure. The copper bar is not lagged, nor is there any mention in the text of the necessity of such lagging. Again, on p. 21—the determination of the period of vibration of a pendulum—it is not clear that the period needs correction (1) for size of amplitude, (2) for damping, but the corrections are merged into one causing ambiguity.

The author describes the measurement of galvanometer resistance on p. 156 (Thomson's method), and begins by telling us that one of 100 ohms resistance is convenient.

In some places the statements are inaccurate, e.g. on p. 175, the "neutral temperature" of a thermoelectric couple is defined as that temperature of the hot junction for which the electromotive force vanishes when the cold junction is maintained at 0° C. On p. 144, we have "Plot a B-H curve as in Fig. 101 (hysteresis loop shown). Determine the hysteresis in ergs per c.c. per cycle by measuring the area of the curve."

There is no doubt much in the book that will prove useful to students preparing for a pass degree examination, but its value would have been enhanced by the bestowal of more care in editing.

How to Colour Photographs and Lantern Slides by Aniline Dyes, Water and Oil Colours, Crystoleum, and other Processes. By R. Penlake. Pp. 77. (London: G. Routledge and Sons, Ltd.; Dawbarn and Ward, Ltd.; n.d.) Price 1s. net.

ALTHOUGH in the greater number of cases the less handwork there is on a photograph the better, it is often possible to apply colour to photographs and

lantern slides in such a manner as not to interfere in any way with their value as impersonal records, and at the same time to increase considerably their value for demonstration purposes, and, in certain circumstances, to enhance their beauty. Experience has shown that the most suitable results are obtained by special methods, without the knowledge of which even the most skilful worker suffers a great disadvantage. It is the technicalities of these special methods that the author describes, dealing first with transparencies and colouring or tinting photographs on the face of them, and in the second part with the art of applying colours on their backs. He gives full instructions as to tools, colours, and processes without wasting any space in "artistic" platitudes.

Fables and Fairy Tales for Little Folk; or, Uncle Remus in Hausaland. By Mary and Newman Tremearne. First series. Pp. iv+135. (Cambridge: W. Heffer and Sons, Ltd.; London: Simpkin, Marshall and Co., Ltd., 1910.) Price 2s. 6d. net.

This is a popularised version of a series of folktales collected by Captain A. J. N. Tremearne, and published, with much useful information on the ethnology and customs of the Hausas, in the Proceedings of various societies. The tales add little to our knowledge of the manners of the people. Nearly all of them are based upon the theme of the transformation of men into animals and *vice-versa*, and there is little of the fairy element. The hero of many of the tales is Spider, who, like the fox of European and Chinese folk-lore and the jackal in India, is the type of the successful rogue. He is appointed king of the beasts, and in various ways swindles the elephant, rhinoceros, and hyæna. He marries a Hausa girl and has children, whom he shelters and dresses with his webs. His rival is the billy-goat, who plays tricks on the lion. In its present form, without notes or references from other folklore sources, the book is of little scientific value; but its quaint and humorous incidents of animal life will doubtless be fully appreciated in the nursery.

Early Britain. Roman Britain. By Edward Conybeare. Second edition, revised. Pp. 275. (London: Society for Promoting Christian Knowledge, 1911.) Price 3s. 6d.

This history of Britain, which extends to the year 455 A.D., begins with a treatment of the period shading on one hand into geology, and on the other into written history. The reader gets a glimpse of what the geologist has pieced together about the life of the inhabitants of this country in Palæolithic and Neolithic times, and an interesting account of the less ancient Britons. A very readable description is given of Britains under the Romans, in which the broad facts stand out clearly.

The Green Book of London Society. Edited by Douglas Sladen and W. Wigmore. Pp. xxii+524. (London: J. Whitaker and Sons, Ltd., 1911.)

This is the second issue of a comprehensive work of reference, the scope of which may be gathered from its sub-title:—"A Directory of the Court, of Society, and of the Political and Official World; including Celebrities in Art, Literature, Science, and Sport, with many other subjects of current interest." Science appears to be given about a page and a half, and the information includes a list of "eminent men of science who appear in London," the names of seven leading engineers, a list of twenty-four important scientific periodicals, and brief particulars of twenty-three scientific societies.